ÇÖZÜMLER

1. $3-\dfrac{\left(\frac{1}{3}-1\right):\frac{1}{3}}{\left(\frac{1}{4}-1\right):\frac{3}{8}}=3-\dfrac{\left(-\frac{2}{\cancel{3}}\right)\cdot\frac{\cancel{3}}{1}}{\left(-\frac{3}{4}\right)\cdot\frac{8}{3}}$

$=3-\dfrac{-2}{-2}$

$=3-1$

$=2$ bulunur.

Cevap: B

2.
$2^x = 3^4$
x $3^y = 2^5$

$2^x.3^y = 3^4.2^5$

$x = 5.y = 4$

$x.y = 5.4 = 20$

*** Kural!**

$2^x = 3^y$

$2^a = 3^b$ olsun.

$x.b = a.y$'dir.

Cevap: D

3. $\dfrac{2}{\sqrt{3}}-\dfrac{1}{2\sqrt{3}}-\sqrt{3}=?=\text{(A)}$

Her taraf $\sqrt{3}$ ile çarpılsın.

$2-\dfrac{1}{2}=A\sqrt{3}$

$\dfrac{3}{2}=A\sqrt{3}$

$\dfrac{\sqrt{3}\cdot\sqrt{3}}{2}=A\sqrt{3}$

$\dfrac{\sqrt{3}}{2}=A\sqrt{3}$

Cevap: C

4. $\dfrac{0,04-0,20}{0,20-0,01}$

$=\dfrac{-0,16}{0,19}=-\dfrac{16}{19}$

Cevap: A

5. $120.y = x^2$

$2.2.2.3.5.y = x^2$

$y = 2.3. = 30$

$x = 2.2.3.5 = 60$

$x + y = 30 + 60 = 90$

Cevap: D

6. $2^x + 2^x.2.2^x.4 = 112$

$2^x(1 + 2 + 4) = 112$

$2^x.7 = 112$

$2^x = 16$

$2^x = 2^4$

$x = 4$

Cevap: D

7. $A = 4a + 1 = 5b + 2 = 6c + 9$

Her tarafa +3 eklenirse;

$A + 3 = 4a + 4 = 5b + 5 = bc + 12$

$A + 3 = \underbrace{4(a + 1) = 5(b + 1) = 6(c + 2)}_{[4, 5, 6] = 60 \text{ (ekok)}}$

$A + 3 = 60$

$A = 57$

Cevap: C

Diğer Sayfaya Geçiniz.

8.
$$x.y = 3$$
$$y.z = 4$$
$$\underbrace{x.z.y^2}_{2} = 12$$
$$y^2 = 6$$
$$y = \sqrt{6}$$

Cevap: D

9. $a = b + c$

$b^3 = b + 3b$

$b^2 = 4$

$b = \pm 2 \overset{2^+}{\Rightarrow} +2$

$a + b + c = 2^3 + 2 + 6$

$= 8 + 8 = 16$

Cevap: A

10. $x = 3k,\ y = 5k$

$3x + 4y = 116$

$3.3k + 4.5k = 116$

$9k + 20k = 116$

$29k = 116$

$k = 4$

$y - x = 5k - 3k = 2k = 8$

Cevap: B

11. $3a + 5b + 2c = 79$

$c = 1$ olsun.

$3a + 5b + 2 = 79$

$3a + 5b = 77$

$\downarrow \quad \downarrow$

$9 \quad 10$

$d = 9,\ \ b = 10$ sağlar.

O halde $c = 1$ imiş.

Cevap: A

12.
$$\frac{\sqrt{3,24}+\sqrt{1,21}}{\sqrt{0,64}-\sqrt{0,49}} = \frac{\sqrt{\frac{324}{100}}+\sqrt{\frac{121}{100}}}{\sqrt{\frac{64}{100}}-\sqrt{\frac{49}{100}}}$$
$$= \frac{\frac{18}{10}+\frac{11}{10}}{\frac{8}{10}-\frac{7}{10}} = \frac{\frac{29}{10}}{\frac{1}{10}}$$

= 29 bulunur.

Cevap: A

13.
$$\frac{(x-1)(x-2)}{x^2+mx+n} = \frac{x-1}{x+3}$$

$(x-2)(x+3) = x^2 + mx + n$

$m = -2 + 3 = 1$

$n = (-2)(3) = -6$

$m + n = 1 - b = -5$

Cevap: E

14. $(x+1)^2 - x = 0$

$(x+1)^{2.2016} = x^{2016}$

$(-x^2)^{2.2016} = x^{2016}$

$x^{4.2016} = x^{2016}$

$x^{\frac{3.2016}{3}} = 1^{\frac{1}{3}}$

$x^{2016} = 1$

Cevap: B

15.
$$\frac{n(n-1)(n-2)!+(n-1).(n-2)!}{(n-1)(n-2)!+(n-2)!}$$
$$= \frac{(n-2)!(n.(n.(n-1)+(n-1))}{(n-2)!(n-1+1)}$$
$$= \frac{n^2-n+n-1}{n} = \frac{n^2-1}{n} = n - \frac{1}{n}$$

Cevap: D

16. $(a-b)^2 + 4ab = a^2 + b^2 - 2ab + 4ab$

$= a^2 + b^2 + 2ab = (a+b)^2$

$(a+b)^2 = (8,324 + 1,676)^2 = (10,000)^2 = (10)^2 = 100$

Cevap: A

17. $\frac{4}{x} + \frac{x}{x+2} + \frac{x-4}{x} = \frac{4}{3}$

$\frac{4+x-4}{x} + \frac{x}{x+2} = \frac{4}{3}$

$1 + \frac{x}{x+2} = \frac{4}{3}$

$\frac{x}{x+2} = \frac{4}{3} - 1$

$\frac{x}{x+2} = \frac{1}{3}$

$3x = x + 2$

$2x = 2$

$x = 1$

Cevap: C

18. i) $\sqrt{4a+b} = 34 - 16a$

ii) $4b - 30 = \sqrt{4a+b}$

$34 - 16a = 4b - 30$

$64 = 16a + 4b$

$64 = 4(4a + b)$

$4a + b = 16$

i'den $\sqrt{16} = 34 - 16a$

$4 = 34 - 16a$

$16a = 30 \Rightarrow a = \frac{15}{8}$

ii'den $4b - 30 = \sqrt{16}$

$4b = 4 + 30 = 34$

$b = \frac{17}{2}$

$a + b = \frac{15}{8} + \frac{17}{2}$

$= \frac{15+68}{8}$

$= \frac{83}{8}$ bulunur.

Cevap: B

19. $x + y + z = 6$

$xy + xz = 9$

$x(y + z) = 9$

$y + z = \frac{9}{x}$ ise

$x + \frac{9}{x} = 6$

$x^2 + 9 = 6x$

$x^2 - 6x + 9 = 0$

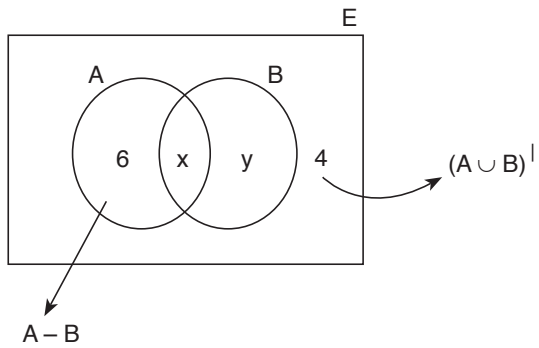
$(x-3)^2 = 0$

$x - 3 = 0$

$x = 3$ bulunur.

Cevap: C

20.



$A^{|}$?? $B^{|} = (A \cap B)^{|}$ demektir.

$s(E) = 6 + x + y + 4 = 15$

$x + y = 15 - 10 = 5$

$s(B) = x + y = 5$

Cevap: C

21. $f(x) = 3^{x+1} - 1 = 3^x \cdot 3 - 1$

$f(x) = 3^{2x} \cdot 3 - 1 = (3^x)^2 \cdot 3 - 1$

$f(x) = 3^x \cdot 3 - 1$

$\frac{f(x)+1}{3} = 3^x \rightarrow \left(\frac{f(x)+1}{3}\right)^2 .3 - 1$

$= \frac{f^2(x) + 1 + 2f(x)}{9_3} .8 - 1$

$= \frac{f^2(x) + 2f(x) + 1 - 3}{3}$

$= \frac{f^2(x) + 2f(x) - 2}{3}$

Cevap: D

Diğer Sayfaya Geçiniz.

22. $f(x-1)$

$f(5)$, $f(6)$ için

x'e 5 ve 6 verilmeli

5 için, $\frac{x+1}{2}$; 6 için

$x^2 - 1$ kullanılmalı.

$f(5) = \frac{5+1}{2} = \frac{6}{2} = 3$

$f(6) = 6^2 - 1 = 36 - 1 = 35$

$f(5) + f(6) = 35 + 3 = 38$

Cevap: C

23. $(x-2).P(x) = x2 \quad -x + a$

$x = 2$

$0.P(2) = 4 - 2 + a$

$2 + a = 0$

$\boxed{a = -2}$

$P(x) = \frac{x^2 - x - 2}{x-2} = \frac{(x-2)(x+1)}{x-2}$

$P(x) = x + 1$

$(x-6).B(x) + C(x) = P(x)$

$(x-6).B(x) + C(x) = x + 1$

$\boxed{x = 7}$

$(7-6).B(x) + C(x) = 7 + 1$

$B(x) + C(x) = 8$

Cevap: E

24. $A = \{3, 6, \ldots 60\}$

$B = \{4,8, \ldots, 60\}$

$A \cap B = \{12, 24, \ldots, 60\}$

$\frac{60+2}{12} + 1 = \frac{48}{12} + 1 = 4 + 1 = 5$

Cevap: B

25. $x_1.x_2 = 3$

$x_1 + x_2 = 1$

$(x_1 + x_2)^2 = x_1^2 + x_2^2 + \underbrace{2x_1x_2}_{3} = 1$

$x_1^2 + x_2^2 + 6 = 1$

$x_1^2 + x_2^2 = -5$

$\frac{1}{x_1^2} + \frac{1}{x_2^2} = \frac{x_2^2 + x_1^2}{(x_1x_2)^2} = -\frac{5}{3^2} = -\frac{5}{9}$

Cevap: A

26. $3^1 = 3$

$3^2 = 4 = \boxed{-1}$

$3^{4K+21} = 3^{21} - 3^1 = \boxed{3}$

Cevap: D

27. $x < 0$

$|x| - |-2x| + |-3x|$

$= -x - (-2x) + (-3x)$

$= -x + 2x - 3x = -2x$

Cevap: C

28. $x + \frac{42}{y} = 12 \Rightarrow x.y + 42 = 12y$

$y + \frac{42}{x} = 9 \Rightarrow x.y + 42 = 9x$

$9x = 12y$

$\frac{x}{y} = \frac{12}{9} = \frac{4}{3}$ bulunur.

Cevap: E

29.

$$\begin{array}{r} A\,B\,A \\ +\ A\,A\,B \\ \hline 9\,2\,C \end{array} \qquad \begin{array}{l} A = 4 \\ B = 7 \\ C = 1 \end{array}$$

$$\begin{array}{r} 4\,7\,4 \\ +\ 4\,4\,7 \\ \hline 9\,2\,1 \end{array}$$

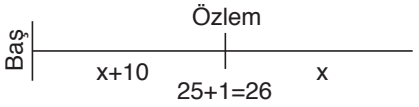
$A + B - C = 4 + 7 - 1 = 10$

Cevap: B

30. $2x + 10 + 1 = 41$

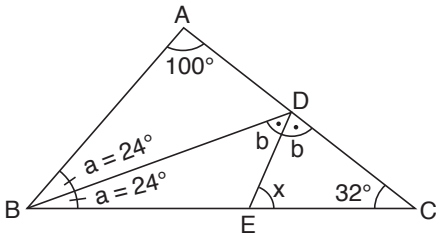
$2x = 30$

$x = 15$



Cevap: C

31.



ABC üçgeninde BD açıortay olduğundan

$m(\widehat{ABD}) = m(\widehat{DBC}) = a$ olsun.

$100 + a + a + 32 = 180$

$2a = 48 \Rightarrow a = 24°$

$m(\widehat{BDE}) = m(\widehat{CDE}) = b$ diyelim

$24 + b + b + 23 = 180$

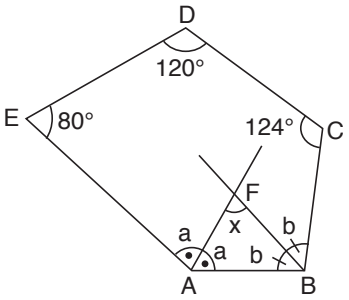
$2b = 124 \Rightarrow b = 62$

O halde EDC üçgeninde

$x + 62 + 32 = 180 \Rightarrow x = 86$ bulunur.

Cevap: E

32.



$(n - 2).180°$

$(5 - 2).180 = 3.180 = 540°$ beşgenin iç açıların toplamı

O halde

$a + a + b + b + 80 + 120 + 124 = 540$

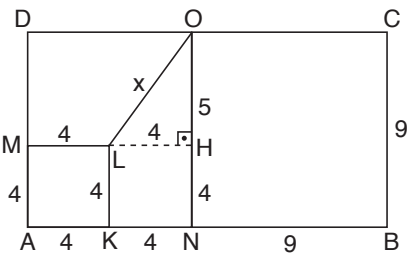
$2(a + b) = 216 \Rightarrow a + b = 108$

AFB üçgeninden;

$x + a + b = 180 \Rightarrow x + 108 = 180 \Rightarrow x = 72$

Cevap: A

33.



$x^2 = 4^2 + 5^2$

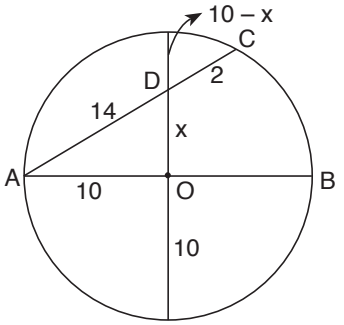
$x^2 = 16 + 25 = 41$

$x = \sqrt{41}$

Cevap: B

Diğer Sayfaya Geçiniz.

34.



D noktası krişlerin kesim noktası olduğundan

$(10 - x).(10 + x) = 14.2$

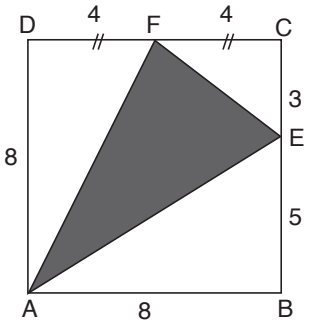
$10^2 - x^2 = 28$

$100 - 28 = x^2 \Rightarrow x^2 = 72$

$x = 6\sqrt{2}$ bulunur.

Cevap: C

35.



Taralı Alanı bulmak için diğer üçgenlerin alanlarını kareden çıkaralım.

$T.A = 8.8 - \frac{8.5}{2} - \frac{4.3}{2} - \frac{8.4}{2}$

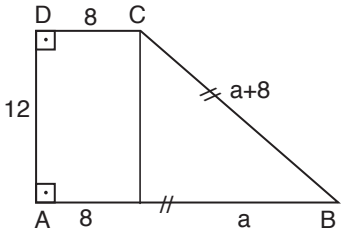
$= 64 - 20 - 6 - 16$

$= 22\ br^2$ bulunur.

Cevap: B

36. $12^2 + a^2 = (a + 8)^2$

$a = 5$



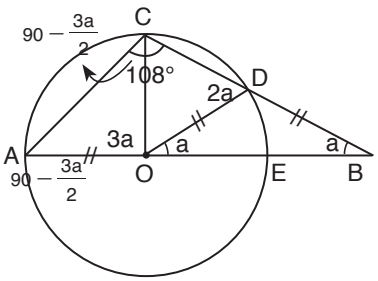
Çevre = 12 + 8 + a + a + 8 + 8

= 36 + 2a

= 46

Cevap: A

37.



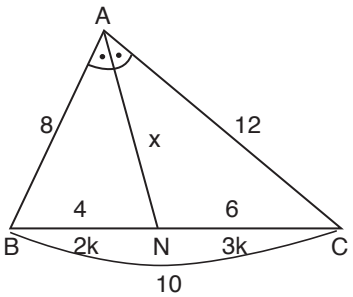
$90 - \frac{3a}{2} + 2a = 108$

$18 = \frac{9}{2}$

$a = 36$

Cevap: C

38.



$2k + 3k = 10$

$5k = 10$

$k = 2$

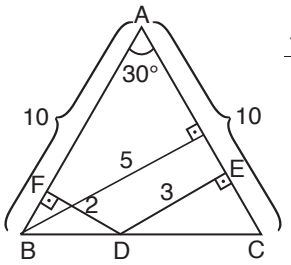
$8.12 - 4.6 = x^2$

$96 - 24 = 72$

$= 6\sqrt{2} = x$

Cevap: B

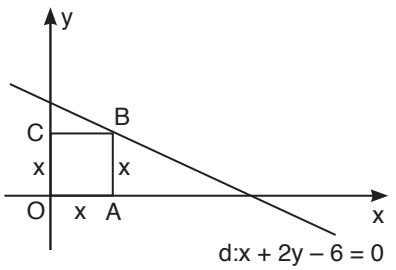
39.



$\frac{10.5}{2} = 5.5 = 25$

Cevap: E

40.



$x + 2.x - 6 = 0$

$3x - 6 = 0$

$3x = 6$

$x = 2$

Alan(OABC) = 2.2

= 4

Cevap: A

Diğer Sayfaya Geçiniz.